

### Earth Science Web quest

**Directions:** Answer each of the following questions on a separate sheet. Make sure to skip lines as you write down the answers and that the answers are in complete sentences

**Part 1** → Click on **Plate Movement/ earthquake and volcanoes** ON **Mrs. McNamara's page website**

1. Click on "Maps." Check the boxes for boundaries, volcanoes, earthquakes, hotspots and velocities. What correlations do you see? What seems to have no relationship?
2. Click on "Motion." Move the plates to see how they have changed over time. What do the black lines represent? How about the green areas?
3. Click on "Details."
  - a. What is oceanic-continent subduction? What is a continental volcanic arc and what are some examples?
  - b. What is a continent-continent collision? What are some examples?
  - c. What is ocean-ocean subduction? What are some examples?
  - d. What is a continental rift? What are some examples?
  - e. What is a midocean ridge? How is it like a conveyor belt?
  - f. What is a continental transform? What is an example?
  - g. What is an oceanic transform?
  - h. What are oceanic hot spots? What are some examples?
  - i. What are continental hot spots? What are some examples?

**Part 2** → Click on **"Interactive Volcano"** on **Mrs. McNamara's website**

1. Click on **Global Perspective**. What are tectonic plates?
2. Click on **"Ring of Fire"** (bottom right corner). What is the "Ring of Fire"?
3. Click on **"Layers Within."** What are they?
4. Click on **"Volcano Types."** What are the 3 types of volcanoes? Describe each type.
5. Click on **"Inside a volcano."** Draw a picture of the inside of a volcano and label the different parts.
6. Click on **"Build your own volcano and watch it erupt."** How do viscosity and gas factor in volcanoes?
7. Click on **"viscosity info"**. What is it?
8. Click on **"gas info."** What is it?
9. Now try your hand at varying the conditions of the volcano and starting the eruption. Fill in the chart below.

Settings	Type of volcano	Type of eruption
low viscosity and low gas setting	Shield volcano	effusive
high viscosity and low gas setting	Dome volcano	slow
Low viscosity and high gas setting	Shield volcano	Hawaiian fire fount
high viscosity and high gas setting	Strato volcano	Plinian

## part 1

- 1) The correlations are all along the plate boundary. There is no relationship between the hot spots and earthquakes.
- 2) The black lines show the current shorelines of all the present day landmasses. The green area represents the outline of actual landmasses, including their under water portions.
- 3) a) Oceanic - continent subduction is subduction of a cold dense oceanic lithosphere plate beneath a continental lithosphere plate.  
A continental volcanic arc is when the magma rises and erupts to form a chain of volcanoes. ~~an~~ Example are the Andes of South America and the Cascade Range of the north western United States.
- b) Continent - continent collision is the collision between two continental plates. Some examples are

C) Ocean-ocean subduction is subduction of a cold, dense oceanic lithosphere plate beneath another oceanic lithosphere plate. Some examples are the San Andres fault.

D) Continental rift is the activity that accompanies continental rifting or break-up. Some examples are Lake Tanganyika.

E) The mid-ocean ridge is the separation of two oceanic plates to form new oceanic lithosphere.

It is like a conveyor belt because plates move away from each other forming new crust and lithosphere.

F) Continental transform is two plates sliding past each other laterally. An example is San Andres fault.

G) The Oceanic transform is transform boundaries in ocean lithosphere are common along mid-ocean ridge segments.



## Part 2

1) The continental hot spots are Hawaii, the mantle, some examples are the which hot rock rises from deep in the mantle. Some examples are the west coast of continental lithosphere may produce a wide variety of magma types, depending on what types of rock are melting. Some examples are the Yellowstone hot spot.

2) Tectonic plates are large sections divided in the Earth's crust which fit together like a puzzle.

3) The ring of fire is the world's most active volcanic zone.

4) The layers within are the lower mantle, outer core and inner core.

5) The three types of volcanoes are shield, cinder cone and shield.

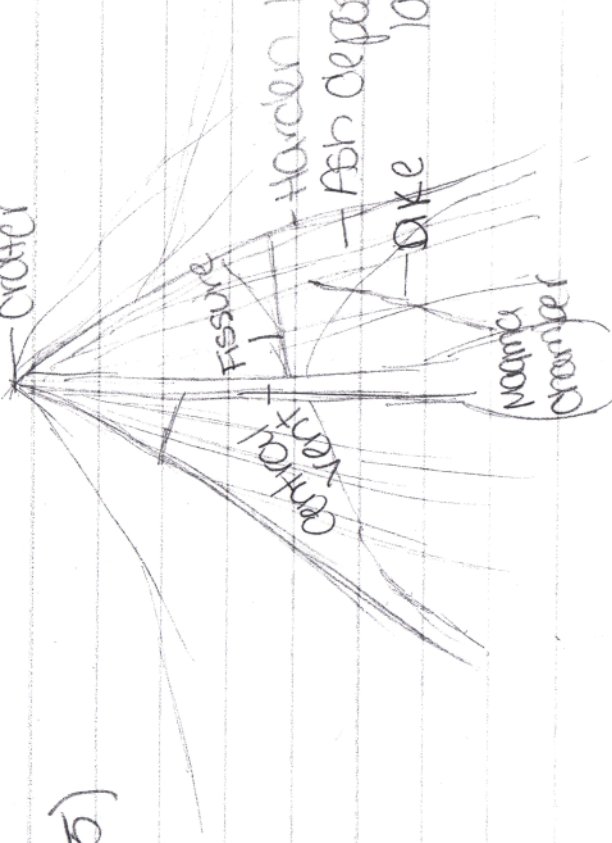
The stratovolcano is built from

layer upon layer of mostly viscous

magma. The andesite are built from piles of ejected fragments

Shield volcanoes are built from layers

5)



- 4) viscosity and gas factor in a volcano because to see how extreme the volcano is while erupting
- 7) viscosity is the magma thickness which ~~usually~~ indicates the amount of silica it contains.
- 8) Gas is the magma's gas content which usually depends on the amount of water and carbon dioxide dissolved with the magma.